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2 **Claims**
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4 What we claim is:

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6 1. A method for the combinatorial biosynthesis of one or more compounds comprising:
7 a) providing one or more starter units, wherein said one or more starter units have
8 incorporated therein a functional handle capable of reacting with a functionality present on a
9 solid support unit;

10 b) attaching said one or more starter units to a solid support unit;
11 c) feeding said one or more support bound starter units into one or more biosynthetic
12 enzymatic machinery systems to generate a collection of template structures;
13 d) functionalizing said template structures using synthetic organic chemistry; and
14 e) repeating steps c) and/or d) until a desired collection of structures is generated.
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16 2. The method of claim 1, further comprising functionalizing said collection of structures
17 generated in step e) to provide a collection of unnatural natural products.
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19 3. A method for the combinatorial biosynthesis of one or more compounds comprising:
20 a) providing one or more starter units, wherein said one or more starter units have
21 incorporated therein a functional handle capable of reacting with a functionality present on a
22 solid support unit;

23 b) attaching said one or more starter units to one or more solid support units;
24 c) feeding said one or more starter units into one or more biosynthetic enzymatic
25 machinery systems to generate a collection of template structures;
26 d) functionalizing said collection of template structures to generate a collection of
27 unnatural natural products.
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29 4. A method for the combinatorial biosynthesis of one or more compounds comprising:

- 1 a) providing one or more starter units, wherein said one or more starter units have
2 incorporated therein a functional handle capable of reacting with a functionality present on a
3 solid support unit;
4 b) feeding said one or more starter units into one or more enzymatic machinery systems
5 to generate a collection of template structures;
6 c) attaching said collection of template structures to solid support units; and
7 d) functionalizing said collection of support bound templates to generate a collection of
8 unnatural natural products.
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